The Cary Arboretum

of The New York Botanical Garden

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Cary Perspectives

(Excerpts from remarks at Groundbreaking Ceremonies for the Cary Arboretum Research and Administration Building, April 26, 1975).

We are bringing the sun down to earth, so to speak. We realize that solar energy is the richest resource on earth and that it is time for us to get acquainted with it directly. Figured at current prices, the sun's energy reaching the earth's surface each day is worth more than $500 billion dollars. Yet we actually use only a few hundredths of one percent of the sun's energy that reaches the earth, mostly for the production of food and fiber.

Why do we need to learn more about using the sun? Because the continued availability of energy is rapidly becoming the most pervasive, difficult, and dangerous issue of our time. And what are the options open us? Today 97% of the energy used to run this nation's industry, agriculture, and transportation, to modify and illuminate human environments in homes and at work, to cook, and communicate, is obtained by burning oil, gas, and coal. These are fossil fuels, the long dead remains of plants, and once used up they will be gone forever. We are told oil and gas will be gone in 30 years; that coal may last several hundred more, but at the cost of digging up 10,000 square miles of the United States and with the addition of lung-damaging sulfur dioxide to the air we breathe.

Conventional wisdom from Washington tells us that as in war so in peace, nuclear energy will save us. Yet the present types of nuclear reactors require fuel that will run out in 25 to 30 years and leave masses of long-lived radioactive wastes for our descendents to cope with. The breeder reactor, if it works, would obviate that problem, but in trials thus far in this country and in the Soviet Union, false starts and explosions have dimmed hopes and still confront us with the absolutely essential requirement of isolating people from plutonium, the most potent radioactive material known.

This then, realistically, is what we see in the energy crisis. By the end of this century we may be tearing up vast areas to reach coal or we may be building hundreds of breeder reactors, the cooling requirements of which will exacerbate another environmental problem lurking in the wings – the limited and fixed amount of fresh water in the world.

One of the most promising energy options that presently seems realistic in continuous and adequate availability and in minimal deleterious environmental impact, is the capturing of solar radiation.

We are living in a time of crisis agendas and need now to cross over to the concept of long-range planning, the dividends from which we may never enjoy but which will assure an enjoyable world for the generations which follow. This change to long-range planning will require major changes in public attitudes. The needed technological capability is ours. We have the requisite scientific, humanitarian, and futuristic viewpoints in our society. What we need now is a sense of trust, a sense of understanding, a sense of cooperation–a deep concern and interest in what is going to happen to all of us rather than just what's going to happen to me. That spirit pervades the Cary Arboretum of the New York Botanical Garden, and I am sure you will see that it is reflected in the plans and the reality of this exciting building.

Howard S. Irwin
Director

Our Growing "Friends" to Meet on June 22

On Sunday, June 22 (rain date, Sunday, June 29), Friends of the Cary Arboretum are invited to a "Bring Your Own Picnic" and Arboretum tour from 12:00 noon to 4:00 p.m. starting at the Gifford House Education Center on the Sharon Turnpike. Gifford is a large red brick Federalist-style house on the left-hand side of the road, going towards Amenia from the intersection with Rte. 44. Attendance is limited to members of the "Friends" organization and their immediate families.

The picnic lunch will start shortly after noon. Coffee, tea and soda will be provided for the guests. After lunch, there will be a short talk on the Arboretum and its work, followed by self-guided tours of the grounds. Staff members will meet "Friends" at several key locations, including Mrs. Cary's tea house, the greenhouse and the nursery area, to explain projects in progress. The special Friends of the Cary Arboretum picnic area, near the Education and Wildlife Center on Fowler Road, will also be open.

In early April, Friends of the Cary Arboretum was an organization that existed only on paper – with no members as yet. As we went to press, we are glad to report that approximately 225 had enrolled. The total includes individual members, family members, club members and combined memberships in the Arboretum and the New York Botanical Garden.

All Friends and their families are cordially invited to come and get acquainted on June 22. The Arboretum Staff looks forward to greeting you.

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Profile — Roswell Forman Barratt

In the early 1930's, Mr. Roswell Forman Barratt, an architect who then lived near Croton, New York, was asked by Mr. and Mrs. Melbert Cary to design a structure on property they had acquired in Millbrook. Specifically, the Carys wanted a small shelter at the top of a hill which commanded a wonderful view of the Catskill mountains. They planned to use this house for late afternoon entertaining and occasional overnight stays.

Mr. Barratt, at that time, had recently completed renovation and expansion work on the Millbrook Golf and Tennis Club. He was acquainted with Mr. and Mrs. Flagler, Mrs. Cary's parents, and often visited relatives in Millbrook.

The house designed for the Carys by Mr. Barratt is now known as the "Tea House," located on the property off the Sharon Turnpike. It consists only of one large room with a kitchen and bath. Mr. Barratt recently visited the Arboretum and inspected his building. He consented to be interviewed at his present home in Southport, Connecticut, to review some of the innovative ideas which had gone into that building some 43 years ago — the first environmentally designed structure on the Cary property.

The Norman roof, the slate-shale chimney and the "chatiers" are shown in this view of the Tea House.

Mr. Barratt recalled that he had met the Carys playing tennis, and they had talked about what kind of structure could be built on the then barren hilltop, the highest point on the property. The area is now almost completely surrounded by trees, but in 1932 it was a meadowland covered with a dry, sedge-like grass. Mr. Cary said, "Well, Mary thinks it would be a good idea to have something up there, but it's obviously in the blazing sun, and it'll be so hot that I can't imagine we could ever have a house it would be possible to use."

Remembering that conversation, Mr. Barratt told us, "There was no residential air-conditioning available at that time. I began thinking about the kinds of structures we could build and hit upon the idea of a house that was virtually a box inside a box with air space between insulated walls and a gravity induced draft, which would take advantage of the breeze that was usually present on that particular piece of meadow. I thought it would be a little cooler than the general atmosphere. I had designed the modular, prefabricated houses which Admiral Byrd took to Antarctica some years before, and I made use of some of the same ideas which had gone into those houses."

"I had heard in the '20's that the California fruit producers were beginning to ship oranges overland, regardless of the season, by using a material called 'Dry Zero', which prevented the freight car contents from freezing on the way. I obtained some of that material and used it for insulation for the 'Little America' houses. I didn't trust one layer; so these were built with two air spaces, both filled with Dry Zero, with the outer, intermediate and inner surfaces of wallboard — a special kind called homosote. These were the same materials I used in the Tea House."

"Of course, the esthetic requirements for these buildings were vastly different. Mr. and Mrs. Cary naturally wanted a very attractive building. I hit upon the idea of using a steep, pitched roof, such as I had seen in Normandy, with ventilators installed in the roof. There, they are called 'chatiers', which means a door for a cat. Mr. and Mrs. Cary had serious doubts about putting ventilators in a building they wanted to look nicely, but I told them I was sure we could do it. I designed copper ventilators in a half-circle shape that could be built in along with the shingling and not be conspicuous, and we put in 6 or 8 of them. The houses in 'Little America' were ventilated by means of double stove pipes, an 8" pipe inside a 12" pipe, going up through the roof. This served a dual purpose of ventilation and warming the air. The Tea House was an adaptation of the same idea, except we wanted cool air to rise. This was accomplished through building the house on isolated piers, rather than having a stone foundation all around, so the air could blow under it and be cooled. The other ventilation feature, besides the roof vents, is the dropped middle panel of the ceiling, which creates a 1½" air space running a distance of some 45 feet. This is the equivalent of a 2' by 3' ventilator in the main (and only) room and takes off any spare heat."

"Because of the high temperature that was reached on the underside of the shingled roof, we wound up with a powerful thermal draft. Mr. Cary told me, some months after the house had been finished, that the normal afternoon or evening temperature of the house was halfway between what it was at 2:00 in the morning and 2:00 o'clock in the afternoon. Then, they found that in the wintertime, since they didn't get the big heat differential on the roof, the updraft did not operate; so the large windows on the west side of the building served to heat it with sunshine."

Mr. Barratt's "other" occupation is being a meteorologist, and he is the only non-British Fellow of the Royal Meteorological Society of England. He gained this honor through research on weather-predicting techniques during the First World War when he was serving in the United States Navy.

On his recent visit to the Tea House, he was pleased to see how well it was holding up. The floors, wallboard and especially the local gray-green slate-shale chimney, he noted, were just as good as when they were built. The stone used for the chimney had been excavated from under the house and was a very handsome color but not a very strong stone. Mr. Barratt recollected that after much dispute with the mason on the job, Mr. Barratt convinced him that the stone was usable if water could be kept out of it. This was done by using layers of sheet lead every three or four feet, from the flue to the outer edge of the stone work. It was estimated at the time that it might last about 5 years, but it has now lasted about 40 years with no visible disintegration.

No accurate temperature recordings have ever been taken at the Tea House to confirm the "environmental air-conditioning" features. Mr. Barratt thinks it might be interesting to use recording thermometers to note the temperature differential.

He also expressed his pleasure in the present ownership of the Cary property, carrying on the Flagler family interest in green things, and he recalled an anecdote of Mr. Flagler, Mrs. Cary's father, who apologized to a guest because there were clover blossoms present in his uncommonly perfect green lawn!

Groundbreaking Ceremony

On a windy, yet sunny Saturday afternoon, April 26, nearly 900 people from Dutchess County and beyond turned out to watch the Cary Arboretum break ground and plant a symbolic tree to mark the start of work on its solar-heated Administration and Research Building.

Ogden Reid, New York State Commissioner of Environmental Protection, a principal guest speaker, paid tribute to the programs of the Arboretum, saying, "I think the work going on here is going to be very significant in the days ahead. If plants can't survive, chances are we're not going to do such a good job of survival either."

Stressing the need for developing new sources of energy that will conserve fuel and the environment, Commissioner Reid said of the Cary Headquarters building, "It is precisely this kind of endeavor that is hopeful for this State and indeed for this nation."

The other principal guest speaker, Congressman Hamilton Fish, Jr., told the audience, gathered in a huge tent at the future building site on Sharon Turnpike that "in a very real sense" they were participating "in what could well be the energy wave of the future." The Congressman noted that the Cary building "is the very first building of its size in our part of the country designed to utilize solar heat and heat pumps for its total heating requirement."

Speaking for the Trustees of the Mary Flagler Cary Trust, which is underwriting the costs of developing the Arboretum, Mrs. L. Lee Stanton told the audience that the concept of the Arboretum was inspired by "Mary Cary's love for this land and for everything that grew on it."

Mrs. Stanton said that she and her fellow Trustees had considered many suggestions for use of the Cary land and a number from distinguished organizations with worthy schemes. "But we felt that the New York Botanical Garden project for a research arboretum combined the most wise preservation of the land, with the real possibility of making a permanent, lasting benefit to the environment for people far beyond these boundaries."

She concluded, "A splendid start has already been made, and we are all confident that Mary's dream will be fulfilled."

Dr. Howard S. Irwin, who introduced the speakers, also delivered an address on the significance of the Arboretum building project in the context of the world energy shortage. Excerpts from his address appear in this issue. Mr. Francis H. Cabot, chairman of the Garden's Board of Managers, presided.

A special disease-resistant Sapporo elm, cultivated at the University of Wisconsin, had been selected as the symbolic tree to be planted for the occasion. As the date approached, however, the elm sapling was still in frozen ground in Wisconsin; so an Oriental dogwood was planted as a temporary substitute. A few days after the groundbreaking, the elm arrived by truck from Wisconsin and has now been planted in the Arboretum nursery, prior to moving to its permanent home at the building site. Another kind of tree – a Goldenrain tree – was available for every family attending the ceremony, to take home as a souvenir, complete with history of the species and planting instructions. Nearly 1,000 souvenir plants were distributed at the ceremony and to other Arboretum friends in the following few days.

Soon after the ceremony, advance work for site preparation was begun, the last step before actual earth-moving, under a contract awarded to Wiltse Bros., Inc., of Poughkeepsie, New York. Working drawings for the building are now being completed by the architect, Malcolm Wells, and the engineering firm, Dubin-Mindell-Bloome Assocs. of New York City. When they are finished, a contractor will be selected and actual building will begin. Completion is likely about 18 months after the start of construction.

Dr. Howard Irwin and Commissioner Reid examine the model of the solar-heated building.

Guests viewed exhibits prepared by the Education and Horticulture Departments.

Guest speaker Congressman Hamilton Fish, Jr.

Breaking the ground:
Mr. Francis Cabot, Commissioner Reid, Mr. Malcolm Wells, Mr. Selwyn Bloome; engineer, Mr. Herbert Jacobi; Mrs. L. Lee Stanton; Mr. Frank Stubbs, Trustees of the Cary, Congressman Hamilton Fish, Dr. Irwin.

Wilcox Park
Study and Recommendations Completed

In 1974 the Cary Arboretum was asked by the Environmental Management Council of the Dutchess County government to make recommendations for the expansion of facilities in Wilcox Park. The Park was purchased by Dutchess County from Mrs. F. P. Wilcox in 1961 and is located in the To wn of Milan in Northern Dutchess County. It is a 600-acre tract, formerly an estate, and has provided picnicing, fishing, swimming and camping areas for thousands of Dutchess County residents since it was opened in 1963.

The study of the park was undertaken in the spirit of providing thoughtful guidance for the recreational development process. The recommendations will help the Dutchess County Parks Department to provide opportunities for new summer and winter activities, outdoor education programs and still allow for the maintenance and improvement of the natural character of the park, as well as to bring added benefits to the citizens of the County.

Under the direction of Peter Dykeman, Education Coordinator of the Arboretum, a careful study of the vegetation, soil, topography, water resources, wildlife resources and historical aspects was prepared. Two major opinion surveys of Dutchess County residents were then carried out. One was a personal interview of 335 randomly selected visitors to the Park, and the other was a mailed survey, sent to leaders of government, environmental groups and other organizations. A variety of additions and improvements were suggested by those surveyed, as well as a number of suggestions for new programs.

All of the suggestions were carefully weighed with respect to their environmental impact, the adequacy of the present facilities and the feasibility of suggested improvements. The resulting recommendations stated in the report include increasing facilities for swimming, enlarging the picnic area and campgrounds, improving vegetation management, wildlife management, winter sports, cultural activities and environmental education. Horseback riding, bicycle paths and snowmobiling were not recommended, since they were found to be either impractical or incompatible with the present and proposed usages of the park or the existing environmental conditions.

The recommendations, submitted in May to the County E.M.C., represent a first step in the long-range development of Wilcox Park as a major recreational facilitiy in Dutchess County. The Arboretum staff who worked on this report is happy to have been asked to provide its neighbors with this kind of information, which can lead to thoughtful and practical development of a beautiful, useful park.

Cary Scientist
Works on Malaysia Environmental Plan

Dr. Robert Goodland, staff ecologist, has recently returned from Malaysia where, at the request of the Government of that country and under the auspices of the International Bank for Reconstruction and Development, he and several other experts prepared a report on environmental conservation and protection. Their report will be used by Malaysia to guide its economic development.

The Federation of Malaysia, or the Malay archipelago, is composed of Malaya, North Borneo, Sarawak and until 1965, Singapore. The Government of Malaysia is developing the Third Malaysia Plan, a fifteen-year development program, and is concerned with conservation of soil and water, conservation of wildlife, conservation of natural eco-systems and the control of agro-industrial effluents and chemicals such as pesticides and fertilizers.

The mission to Malaysia included an industrial pollution control specialist, a wildlife conservationist, a legal advisor, and Dr. Goodland as ecologist as well as writer and editor of the report.

Until two decades ago, Malaysia was almost totally dependent on its rubber crop. In 1955 the Government invited the World Bank to advise on economic development and propose alternatives to the rubber monoculture. Since that time Malaysia has made effective use of advisory agencies and resources to develop other kinds of crops and other methods of using its resources toward a planned and environmentally sound development.

The special concern of the latest mission was to propose means of development compatible with environmental protection.

Malaysia is endowed with many valuable natural assets in the form of its forests, lands, water and minerals, which can be thought of as the national capital. Products derived from these assets, or capital, can be thought of as interest earned by the process of development. If these assets are sold off, the inherited capital is being spent. If the asset is renewable, the yield can be sustained, and thus the natural "capital" is preserved. The basic recommendations of the mission were based on the philosophy of conserving the natural resources of Malaysia as capital not to be depleted.

The mission arrived in Malaysia on February 27th and worked there for only six weeks. Individually and in groups, the mission met with committees and individuals throughout government, academia and the private sector for information and discussions. Inspections of different regions and sites were undertaken throughout the country.

Before the mission departed, the Government requested a brief summary of findings, which was presented on March 31st. A full report of 173 pages by Dr. Goodland was submitted to the World Bank in May.

Dr. Goodland reported that Malaysia was the first government in his knowledge to request such a report as an integral part of the national economic planning process. This allows the ecologist to give thought to developments before they cause irreparable damage, rather than trying to step in and repair what has already been lost to the environment. He was also gratified at the composition of the mission staff, also a "first" to his knowledge to coordinate the components of legal, administrative, agricultural, wildlife and industrial expertise, in creating a viable environmental plan.

Dr. Goodland has conducted six studies related to World Bank programs.

DEER STUDY

One of the research programs underway at the Cary Arboretum aims to find out the best method of enabling a collection of plants to live compatibly with native herds of deer. Is fencing the answer? Deer repellent substances? Birth control, or other methods of controlling the deer population? Before any reliable answers can be found to these questions, basic facts must be gathered. Accordingly, the Arboretum has retained Jay McAninch, a graduate student from Ohio State University, who is working for his Master's in wildlife management. His research at the Arboretum is under the supervision of Wildlife Studies Coordinator, Dr. Robert Tillman.

Between now and next Spring, Mr. McAninch, by use of tagging and monitoring methods approved by the New York State Department of Environmental Conservation, will be making a detailed study of the deer population at the Cary Arboretum: numbers, age, sex, travel and feed patterns, and other characteristics. Out of this study, eventually will come a plan that will accomplish two goals: protecting the plant collections and at the same time assuring a healthy but non-destructive deer herd on the Cary acreage.

A series of meetings is being held with neighboring property owners to explain the program and to enlist their cooperation.